

ABSTRACT**APPARATUS FOR DETECTING AND RECOVERING DATA**

An apparatus for detecting and recovering data embedded in information
5 material, the data having been embedded in the material in a transform domain
representation by arranging for the data to modulate a predetermined data sequence to
form modulated data and combining the modulated data with the material. The
apparatus comprises a transform processor operable to transform the material into the
transform domain representation, and a correlation processor operable to correlate
10 transform domain data symbols bearing the modulated data with a reproduced version
of the predetermined data sequence to form a correlation output signal and to recover
the embedded data from the correlation output signal. The correlation processor is
operable to repeat the correlation for transform domain data symbols and data symbols
of the predetermined data sequence for each of a plurality of start positions in the
15 transform domain. The start positions represent at least one relative possible shift of
the transform domain data, and if the shift of the transform domain data represents a
loss of transform domain symbols, corresponding symbols are omitted from the
predetermined data sequence. The lost transform domain data symbols and the
corresponding symbols of the predetermined data sequence are not included in
20 calculating the correlation output signal.

[Fig 11 and 14]